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CENTRAL INTELLIGENCE AGENCY

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SUBJECT Soviet Aircraft Engines

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THIS IS UNEVALUATED INFORMATION 25X1

1. take-off, sea level maximum and cruising powers with rpm of M 11 D and M 11 K engines

M 11 D Engines	M 11 K Engines
Take-off maximum hp: 125	Take-off maximum hp: 180
Take-off maximum rpm: 1600	Take-off maximum rpm: 1800
Sea level maximum hp: not known	Sea level maximum hp: not known
Cruising hp: 80	Cruising hp: 120
Cruising rpm: 1200	Cruising rpm: 1200
Ratio of propeller to crankshaft: 1:1	

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2.

3. lubricating oils are used with these engines

In spring and fall: MK type
In winter: MZS type
In summer: MS type

4. type, diameter and number of blades of the propellers fitted to these engines 25X1

M 11 D Engines	M 11 K Engines
Type: Soviet manufactured	Type: VISH; Soviet manufactured
Propeller blades: wood	Propeller blades: wood
Number of blades: two	Number of blades: two
Diameter: two meters; fixed pitch	Diameter: 1.80 m; automatic constant speed pitch control

5.

M 11 D engines: UT-2 and PO-2 aircraft
M 11 K engines: YAK-18 and KANYA (Fieseler storch) aircraft

6. ratio of supercharger drive speed to the crankshaft on the ASH-21 Aero engine

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The ratio is 62:6

7. type, diameter and number of blades of the propeller

Type: VISH
Diameter: 3.20 m
Propeller blades: metal
Number of blades: three
Pitch control: automatic, constant speed; oil pressure, R-7 type; oil pressure increased to 23 kg/cm^2 from 6 kg/cm^2 in order to change pitch.

8. types of lubricating oils are used

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In spring and fall: MK type
In winter: MZS type
In summer: MS type

9.

10

11

the following information on the VK-105 Aero engine.

HP
Take-off: 1300
Normal climb (in both supercharge gears): 1300 (in 1st gear at 3000 m altitude); 1000 (in 2nd gear at 4500 m altitude)
Maximum cruising power: 1000
Combat power: 1300

RPM
Ratio: 2 (crankshaft) to 1 (propeller)
Take-off: 2600 (crankshaft)
Normal climb: 2600 (1st gear); 2300 (2nd gear)
Maximum cruising power: 2000 (crankshaft)
Combat power: 2600 (crankshaft)

Height for given power:
3000 m altitude - 1300 hp
4500 m altitude - 1000 hp

Boost Pressure
Take-off: 1100 Hg mm
Normal climb: 1000 Hg mm (in both supercharge gears)
Maximum cruising power: 900 Hg mm
Combat power: 1100 Hg mm

Fuel consumption
Take-off: 230 gr per hp per hour
Normal climb: not known
Maximum cruising power: 210 gr per hp per hour
Combat power: probably 230 gr per hp per hour

12. types of propellers are fitted to these engines

VK-105 Aero Engine
Propeller type: VISH-105
Blades: three; metal
Pitch control: automatic, constant speed; oil pressure, R-7 type
(VK-105 engines are equipped with six carburetors, one for two cylinders)

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13. the VK-107 was used in the YAK-9 and the PE-2.

14. air compressor, generator and other auxiliary units The compressor to crankshaft rpm ratio was 62:6 in 1st gear, 85:8 in 2nd gear. The compressor was equipped with a Polikhovsky automatic air intake control valve. The generator was 550 watts, 24 volts. The magnetoes were BSM type. This engine had six carburetors, one for every two cylinders. I can give the following information on the performance of the VK-107 engine.

HP:
1650 at 5500 m altitude with compressor in 1st gear at 3100 rpm (crankshaft)
1200 at 10000 m altitude, with compressor in 2nd gear at 2800 rpm (crankshaft)
1500 at 7000 m altitude, with compressor in 2nd gear at 3000 rpm (crankshaft)

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